

25

PROCEEDINGS
OF THE
CALIFORNIA ACADEMY OF SCIENCES
FOURTH SERIES

Vol. XXI, No. 14, pp. 173-181; 1 text figure

APRIL 20, 1934

No. 14

FORMICIDAE OF THE TEMPLETON CROCKER
EXPEDITION, 1933¹



BY
WILLIAM MORTON WHEELER
Professor of Entomology, Harvard University

The following ants collected by Mr. Maurice Willows Jr. in the Solomon, Santa Cruz and Danger islands comprise several forms not hitherto recorded from the Papuan region. One of the species represents a new and very interesting genus, *Willowsiella*, quite unlike any known Myrmicine ant.

FAMILY FORMICIDÆ
SUBFAMILY PONERINÆ
Odontomachus hæmatoda (Linn.)

Solomon Islands: Northwest end of Bellona Island (VI.9.33; VI.19.33; VI.23.33) ♀.

Santa Cruz Islands: Nupani Island (V.8.33) ♀ — Mohawk Bay, Matema Island (VII.9.33; VII.10.33) ♀ — Anuda Island (VII.15.33) ♀ — Tevia Bay, Vanikoro Island (V.6.33) ♀.

¹ NOTE: Vol. XXI of Proceedings was originally planned to contain only the results of the Crocker Expedition of 1932. However, his expedition of 1933 (not solely in the interest of the Academy) has added more new material from places in the Pacific Ocean to the Academy's collections. It has seemed but natural to incorporate the reports upon this later material with the reports on that collected on the Expedition of 1932. Consecutive numbering has been adhered to.—*Editor*.

Odontomachus hæmatoda var. **fuscipennis** Forel

Solomon Islands: Kungava Bay, Rennel Island (VI.14.33) ♂ ♀.

Numerous workers and three females, two of which are dealated. In this variety, originally described from Ceylon and Sumatra, the female has deeply infuscated wings, but the worker is indistinguishable from that of the typical *hæmatoda*. Perhaps, therefore, some or all of the workers above referred to the typical form of the species may really belong to this variety, which is not recorded by Mann from the Solomon Islands.

SUBFAMILY MYRMICINÆ

Pheidole megacephala (Fabr.)

Santa Cruz Islands: Anuda Island (VII.18.33) ♂ — Mohawk Bay, Matema Island (VII.8.33) ♂.

Danger Islands: Puka Puka Island (IV.9.33) ♂.

This pantropical ant is not recorded by Mann from the Solomon Islands.

Willowsiella Wheeler, gen. nov.

Worker. Monomorphic; integument smooth, hard and thick. Head rather large; eyes well-developed, near the middle of the sides; ocelli absent. Mandibles rather small, triangular, with oblique masticatory border bearing a well-developed apical tooth and a few poorly developed basal teeth. Palpi very short, the maxillary pair apparently 3-jointed. Clypeus with a raised plate-like median portion which is marginate on each side, extending forward as a subrectangular lobe and backward between the frontal carinæ as a blunt point. Posterior clypeal suture distinct; lateral portions of clypeus short and much depressed so that the anterior prolongations of the antennal foveæ are very deep. Frontal carinæ well-developed but short, rather far apart and feebly diverging posteriorly. There are no scrobes for the antennæ. Frontal area and groove absent. Antennæ stout, 11-jointed; first funicular joint well-developed, joints 2-7 short and transverse, 8-10 forming an enlarged and very distinct 3-jointed club, which is longer than the remainder of the funiculus. Thorax high, evenly arcuate above, without any traces of promesonotal and mesoëpinothoracic sutures. Epinotum sloping without distinct base and declivity, armed with a pair of broad spines which are placed very low; metasterna well-developed, auriculate and compressed. Petiole very large, with a short, stout peduncle provided on each side with a blunt rectangular protuberance. Postpetiole very small compared with the petiole, very broad and very short. Gaster lenticular, consisting very largely of the first segment which is as broad as long and constitutes the whole dorsal surface; remaining segments very small and retracted; sting very long, exerted. Legs stout, hind tibiæ with delicate, hair-like, vestigial spurs; hind metatarsi as long as the tibiæ.

Genotype: *Willowsiella dispar* sp. nov.

Willowsiella dispar Wheeler, sp. nov. (Fig. 1)

Worker. Length very nearly 2.5 mm.

Head trapezoidal, slightly longer than broad, with nearly straight, anteriorly converging sides and feebly and evenly convex posterior border; in profile moderately convex above and subtruncate behind, with concave occipital border. Eyes slightly in front of the middle of the sides, moderately large, convex, semi-circular, with straight inferior orbit. Mandibles with straight external borders and two or three blunt teeth in addition to the acute apical tooth. Antennal scapes reaching to the posterior fourth of the head, curved at their bases; first funicular joint one and one-half times as long as broad; joints 2-7 fully twice as broad as long; eighth nearly as long as the three preceding joints together; the ninth as long as broad, the terminal distinctly longer than the combined eighth and ninth. Thorax in profile convex and evenly rounded above; seen from above slightly more than twice as long as broad, broader in front than behind, with broadly arcuate anterior border, subrectangular humeri and straight sides which gradually converge posteriorly to the epinotal region where they become subparallel. Epinotal spines as broad at the base as long, acute, strongly compressed, subparallel, directed backward and slightly upward, the space between them sloping and feebly concave. Petiolar node in profile higher than long, truncated anteriorly and posteriorly and

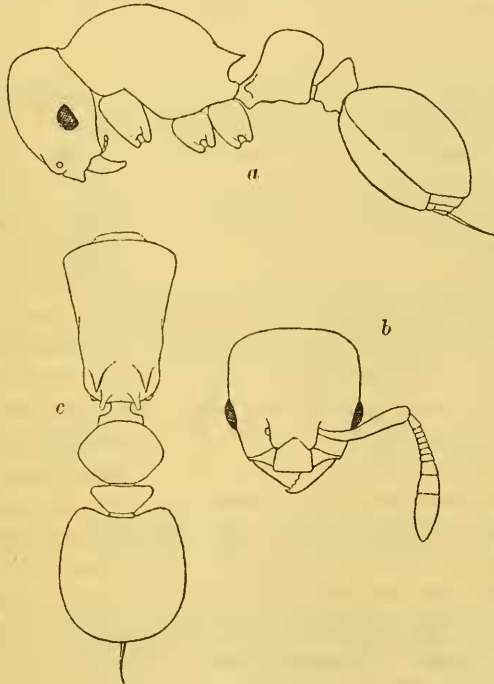


Fig. 1. *Willowsiella dispar* gen. et sp. nov.
a, lateral aspect; *b*, head, dorsal aspect;
c, thorax and abdomen, dorsal aspect.

rounded dorsally; seen from above transversely subelliptical, broader than the epinotum, with very bluntly angulate sides, nearly one and one-half times as broad as long. The peduncle bears on each side a blunt rectangular projection and at its anteroventral border a blunt tooth. Postpetiole anteroposteriorly compressed and cuneate in profile, with straight anterior and posterior surfaces and blunt superior border; from above much narrower than the petiolar node, broadly trapezoidal, fully twice as broad as long, its anterior and lateral borders straight, the latter strongly converging posteriorly. First gastric segment subquadrate, with broadly rounded anterior and posterior corners and deeply excised anterior border.

Shining; body and legs regularly, very finely and delicately reticulate, with sparse umbilicate punctures, distinctly coarser on the mandibles, head, thorax and petiole than on the postpetiole and gaster, which are smoother and more minutely and sparsely punctate. Frontal carinae and clypeus granular, the raised median portion of the latter with a few longitudinal rugae on each side. Cheeks coarsely reticulate-rugose; lower portion of epinotal declivity with several transverse rugae.

Hairs yellowish, very short, erect only on the clypeus and tip of the gaster, elsewhere appressed and arising from the umbilicate punctures. Pubescence short, even, appressed, confined to the antennae and legs.

Black; mandibles, antennae, legs and terminal segments of gaster yellowish brown; femora dark brown, except at their bases and tips; median portion of antennal scapes somewhat infuscated.

Described from a single specimen taken by Mr. Maurice Willows Jr. at the northwestern end of Bellona Island, Solomons (VI. 23.33).

The genus *Willowsiella* evidently belongs to Emery's tribe Meranoplini, which has hitherto included only five genera: *Promeranoplus* Emery, *Prodicroaspis* Emery, *Mayriella* Forel, *Calyptomymex* Emery (with the subgenus *Dicroaspis*) and *Meranoplus* F. Smith. *Mayriella*, *Calyptomymex* and *Meranoplus* have deep scrobes for the accommodation of the antennae and a different number of antennal joints, except in certain species of *Calyptomymex*. *Willowsiella* is more closely related to *Promeranoplus* and *Prodicroaspis*, which are known only from New Caledonia, but both have 12-jointed antennae and a very differently shaped thorax and pedicel. The new genus is therefore more specialized than these two but much less so than the three other genera. Emery (*Les Fourmis de la Nouvelle-Calédonie et des îles Royalty*, 1914, p. 14, *nota*) expressed the following opinion concerning the phylogeny of the Meranopline genera: "The two genera *Promeranoplus* and *Prodicroaspis* are apparently very closely allied. They arose from an unknown primitive type of the tribe Meranoplini and suggest transitions to two existing groups, one of which is represented by the single genus *Meranoplus*, the other by the genera *Calyptomymex*, *Dicroaspis* and *Mayriella*. The mesonotum is very prominent and armed with appendages in *Promeranoplus* and *Meranoplus* but unarmed in the others, and, since the epinotum tends to become abbreviated, the basal surface is very short and the spines (if present) are at half the height on

the declivity." Willowsiella in all probability departed from the unknown ancestral Meranopline along a third independent line of phylogenetic development in which the head failed to develop antennal scrobes, the thorax acquired no appendages and the antennæ retained a more primitive number of joints (eleven) than Mayriella, which has ten, and Meranoplus, which has only nine joints.

Tetramorium guineense (Fabr.)

Solomon Islands: Tai Lagoon, Malaita (V.30.33) ♂.

Santa Cruz Islands: (Anuda Island (VII.15.33) ♀.

Danger Islands: Puka Puka Island (IV.9.33) ♀.

Palmyra Island (IV.1.33) ♀.

This ant is now widely distributed throughout tropical and subtropical countries.

Tetramorium pacificum Mayr

A single worker from the northwestern end of Bellona Island, Solomons (VI.23.33). Though common in Indonesia and Oceania this species is not recorded by Mann from the Solomons.

Tetramorium melanogyna Mann var. **pallidiventre** Wheeler, var. nov.

Worker. Differing from the typical *melanogyna* in having the gaster yellow instead of fuscous. The mandibles and legs are of the same yellow color as the gaster, the knees, however, are infuscated. The petiolar and postpetiolar nodes are as coarsely reticulate-rugose as the thorax and their lateral marginations are less distinct.

A single specimen from the northwestern end of Bellona Island, Solomons (VI.19.33).

Xiphomyrmex costatus Emery subsp. **willowsi** Wheeler, subsp. nov.

Worker. Resembling the subspecies *flavescens* Emery but the femora and abdomen are yellow and paler than the rufotestaceous head and thorax, the antennal scrobes are not continued beyond the eyes, there are six rather sinuous longitudinal rugæ between the frontal carinæ and the thoracic rugæ are irregular and vermiculate. Antennal scapes extending fully one-fourth their length beyond the posterior corners of the head; funicular joints 3-5 as broad as long; epinotal spines shorter than in the typical *costatus* and either straight or slightly curved upward; metasternal spines two-fifths as long as the epinotal spines; petiolar peduncle only slightly longer than the node; postpetiole nearly twice as broad as long.

Two workers; one from Uras Cove, Malaita Island, Solomons (type locality, V.28.33) and one from Star Harbor, Cristoval Island (VII.1.33) in the same group. Mann records only the subsp. *flavescens* from the Solomons and states that it lives in hollow twigs.

SUBFAMILY DOLICHODERINÆ

Iridomyrmex myrmecodiæ Emery

Solomon Islands: Uras Cove, Malaita Island (V.28.33) ♀ ♂—Ugi Island (VI.28.33) ♀.

Iridomyrmex anceps Roger subsp. **papuanus** Emery

Santa Cruz Islands: Matema Island (VII.7.33) ♀ —Mohawk Bay, Matema Island (VII.8.33) ♀.

Turneria pacifica Mann

A single worker from Matema Bay, Santa Cruz Island (VII.8.33). This species was originally described from a single specimen taken by Dr. Mann at Graciosa Bay on the same island. Only four other species of the singular genus *Turneria* are known, *frenchi* Forel and *bidentata* Forel from Queensland, Australia, *dahli* Forel from the Bismarck Archipelago and *butteli* Forel from Sumatra. These, too, seem to be known from very few worker specimens.

Tapinoma melanocephalum Fabr.

A single worker from Anuda Island, in the Santa Cruz group (VII.15.33). A widely distributed pantropical species.

SUBFAMILY FORMICIDÆ

Anoplolepis longipes (Jerdon)

Solomon Islands: Santa Catalina Island (VII.2.33) ♀ —Kau Kau Plantation, Guadalcanar Island (V.20.33; V.23.33) ♀ ♀ —Star Harbor, San Cristoval Island (VII.3.33) ♀.

Santa Cruz Islands: Nupani Island (V.8.33) ♀ —Mohawk Bay, Matema Island (VII.10.33) ♀ —Matema Island (VII.7.33) ♀.

A well-known species widely distributed in Southern Asia, Indonesia and Oceania. It has even established itself in Mexico.

Oecophylla smaragdina Fabr. subsp. **subnitida** Emery

Solomon Islands: Star Harbor, San Cristoval Island (VII.1.33)
♀ —Kau Kau Plantation, Guadalcanar Island (V.20.33) ♀.

A rather smooth variety of the common East Indian "red tree ant," which uses its larvæ in spinning the silken webs that form the sutures of its leafy nests.

Camponotus (Myrmamblys) reticulatus Roger subsp.
bedoti Emery

Solomon Islands: Malaita Island (V.28.33) ♀ —northwestern end of Bellona Island (V.28.33) ♀ —Santa Catalina Island (VII.2.33) ♀ —Kau Kau Plantation, Guadalcanar Island (V.20.33) ♀ —Kungava Bay, Rennell Island (VI.14.33) ♀.

Sikaiana Island, east of Solomons (V.15.33) ♀.

Santa Cruz Islands: Nupani Island (V.8.33) ♀ —Anuda Island (VII.18.33) ♀.

All the numerous specimens are minor workers and vary somewhat in the sharpness of the fine striolation of the body. This ant was recorded by Mann from many localities in the Solomons and by Emery from Ternate, the Sula and Morty Islands. It also has a wide distribution in Indonesia (Borneo, Java, Sumatra).

Polyrhachis (Myrma) relucens (Latr.) subsp. **andromache**
F. Smith var. **nesiotis** Mann.

Eight workers from Tevia Bay, Vanikoro Island, Santa Cruz group (V.6.33). This variety was originally described from Graciosa Bay, Santa Cruz.

Polyrhachis (Myrma) relucens subsp. **ithonus** F. Smith

A single worker from Mohawk Bay, Matema Island, Santa Cruz Islands (VII.2.33). Hitherto recorded only from the Moluccas.

Polyrhachis (Myrma) labella F. Smith var. **brunneipes** Wheeler,
var. nov.

Worker. Like the var. *obliqua* Stitz from Bougainville Island, Solomons, in the shape of the epinotum which has a more oblique declivity than in the typical *labella*. The pubescence on the thorax

is grayish and not very long, abundant only on the pleuræ, finer and rather sparse on the gaster. Legs, excluding the coxæ, castaneous, the tibiæ scarcely paler than the femora and not yellow as in the typical *labella* and the var. *obliqua*.

A single worker from the northwestern end of Bellona Island, Solomons (VI.21.33).

Polyrhachis (Chariomyrma) rere Mann

Six workers from Anuda Island in the Santa Cruz group (VII.18.33). Originally described from Rere, on Guadalcanar Island, Solomons.

Polyrhachis (Chariomyrma) kaipi Mann

A single worker from Anuda Island (VII.15.33). Originally described from Malaita Island, Solomons.

Polyrhachis (Chariomyrma) arcuata Le Guillou var. **acutinoda** Forel

One worker from the Kau Kau Plantation, Guadalcanar Island, Solomons (V.23.33). This variety was originally described from the Bismarck Archipelago.

Polyrhachis (Hedomyrma) annæ Mann

Solomon Islands: Northwestern end of Bellona Island (VI.23.33)
♂ —Kau Kau Plantation, Guadalcanar Island (V.20.33) ♀ —Kun-
gava Bay, Rennell Island (VI.14.33; VI.16.33) ♂ ♀.

Santa Cruz Islands: Mohawk Bay, Matema Island (VII.9.33)
♂ ♀.

Female (undescribed): Length 6–6.5 mm.

Resembling the worker; pronotal teeth shorter than broad at their bases and less acute; epinotal spines shorter and subparallel, petiolar spines straight and less divergent. Mesonotum as long as broad, semicircular in front. The dense golden pubescence covering the body the same as in the worker but somewhat less silvery on the head and thorax, the pale erect hairs slightly more numerous on the thorax and gaster.

Graciosa Bay, Santa Cruz Island is the type locality of this beautiful species, which was taken by Mann also in several localities in the Solomons.

***Polyrhachis (Myrmatopa) osæ* Mann**

A single worker from the Kau Kau Plantation, Guadalcanar Island, Solomons (V.20.33). The species was originally described from Ugi Island and recorded from three localities on San Cristoval.

***Paratrechina longicornis* (Latr.)**

A single worker from Puka Puka Island in the Danger group (IV.19.33). Mann found this pantropical species in all the localities which he visited in the Solomons.

***Nylanderia vaga* (Forel)**

Solomon Islands: Sikaina Island (V.15.33) ♀ —Santa Catalina Island (VII.2.33) ♀ —eastern end of Bellona Island (VI.19.33) ♀ .
Nupani Reef Island, east of Solomons (V.8.33).

Santa Cruz Islands: Matema Island (VII.7.33) ♀ —Mohawk Bay, Matema Island (VII.8.33) ♀ —Anuda Island (VII.15.33) ♀ .

The large number of specimens are rather uniform in color and pilosity and close to the form which Santschi has recently called subsp. *crassipilis* from Samoa, Fiji and Tahiti.

***Nylanderia obscura* (Mayr) var.**

A single worker from Kungava Bay, Rennell Island, Solomons (VI.14.33), which agrees well with the Australian type of the species except in its somewhat less robust stature and deep black coloration. Mandibles, antennæ and legs reddish yellow, with the apical halves of the scapes and the femora and tibiæ, except their bases and tips, black. I hesitate to introduce a new name for this form without additional material.

***Nylanderia dichroa* Wheeler, sp. nov.**

Worker. Length about 2.7 mm.

Closely resembling *N. rosæ* Forel of Australia in form and sculpture but of very different color. Head broader, with more convex eyes and distinctly concave posterior border; antennal funiculi longer and more slender; base of epinotum more convex and rounded. Petiolar node with more rounded and less truncated superior border, inclined forward as in *rosæ*. Gaster anteriorly with a deep concavity for the accommodation of the petiole. Yellow, with jet black gaster; anal segment reddish. Smooth and shining. Pilosity much as in *rosæ*, with the erect hairs long and coarse, but longer and more numerous on the mesonotum and sides of the pronotum. The hairs are dark brown but appear partially pale in some lights. Pubescence on epinotum and legs rather conspicuous, white and appressed.

A single specimen from the Kau Kau Plantation, Guadalcanar Island, Solomons (V.20.33).